



# HPAI Disposal Team Report

# Team Members

- ▶ Redding District: Mike Spiker
- ▶ Modesto District: Guy Gary, Randy Anderson, Ken Takeshita, Elsa Valdovinos
- ▶ Tulare District: Greg Sammons, Brian Colegrove, Bill Garlick, Elliot Elkins
- ▶ Sacramento: Dennis Wilson
- ▶ CalRecycle liaison: Diane Vlach



# Mission

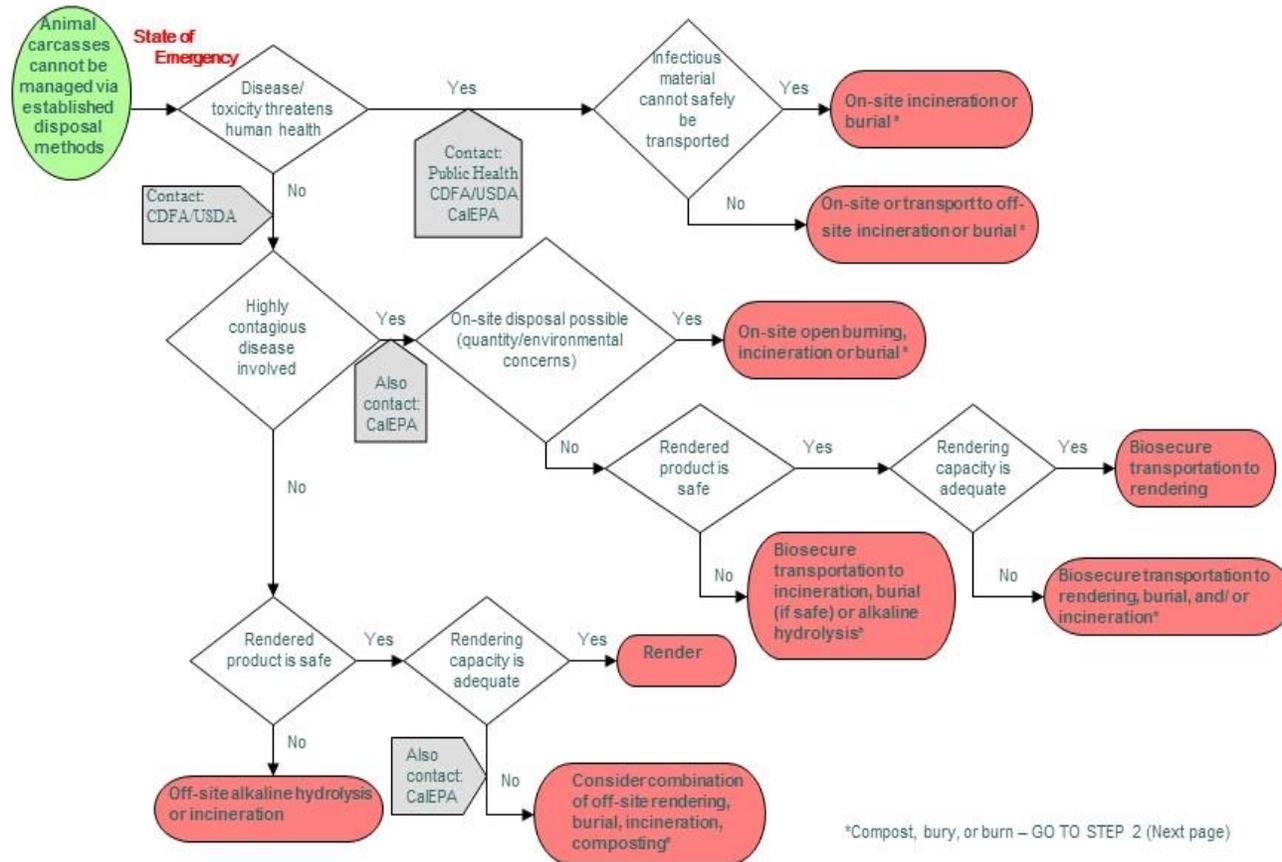
- ▶ Acquire and or develop materials to aide in poultry carcass disposal
  - ▶ Materials to help producers
  - ▶ Materials to help responders



# Efforts Driven by Disposal Priorities

- ▶ For infectious diseases on-site > off-site
- ▶ Theoretically incineration is best for dealing with dz
- ▶ Given circumstances- flammable structures, air restrictions- composting is best on site option
- ▶ Recognizing not all facilities can accommodate on-site composting offsite disposal will be considered on a case by case basis and by the dynamics of the event.





Note: The above flow chart offers *basic* guidance for emergency carcass disposal decisions. Actual disposal methods will be determined on a case-by-case basis, and the decision-making process will likely involve additional factors.



# Natural Rendering: Composting Poultry Mortality

## The Emergency Response to Disease Control



### Select Site

1. Select a site that is well drained and not subject to flooding. Keep piles away from homes and businesses and from water courses, sinkholes, seasonal seeps or other landscape features that indicate the area is hydrologically sensitive.

2. When implementing in-house composting, the poultry house will be vented naturally, but mechanical ventilation should be turned off.

### Good Housekeeping

3. Site cleanliness is an important aspect of composting; it deters scavengers, helps control odors and keeps good neighbor relations.

### Prepare Base

4. Push litter and feed off to the side of the barn. Lay an 18 inch deep bed of coarse wood chips, 8-12 feet wide (depending upon structure and equipment constraints) and as long as space permits.



### Build Pile

5. Add a 12-15 inch layer of litter and birds, then cover with a 12-15 inch layer of wood chips or other carbon sources.

6. Add another layer of litter and birds until the windrow is two or three layers high and as long as needed.

7. If your birds and litter are not separate, put a carbon base down (as in step 4), add birds mixed with litter and bedding to 4-5 feet high and continue as follows.

### Cover Well

8. Cover with 2 feet of wood chips or other carbon sources to create a bio-filter. The finished section should be 5-7 feet high.

9. Make sure all mortalities are well-covered to keep odors down, generate heat and keep vermin or unwanted animals out of the windrow.

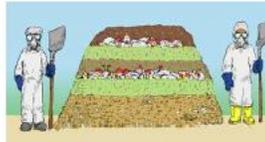
### Check Temperatures

10. Monitoring is the only activity that will occur. Temperature probes will be used to record temperatures and should range from 131°-150°F or 55°-65°C during most of this time period.

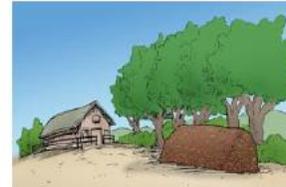
11. The primary process in-house, where it reaches thermophilic temperatures, will take 10-14 days. During this time, no turning, agitating or active aeration should occur.



**MOISTURE NOTE:** If litter is very dry, add moisture to the layers as you are building them. The compost feedstock should be at 30-40% moisture.



**NOTE:** If there is a disease outbreak, make sure on and off-farm workers wear personal protective equipment and are properly sanitized when done. Workers should be vaccinated if applicable.



Windrows moved outside for the curing process.

12. After the required time/temperature duration, windrows can be moved outside the buildings for the curing process. If composting for disease outbreak, then testing for the presence of the disease will be required.

### Let Sit for 4 to 6 Months

13. Let sit for 4-6 months.

### Reuse the Material

14. Reuse the material as a bed for additional carcass compost piles.

### Benefits of Composting

- ◆ Pathogen kill occurs in thermophilic composts-helps control pathogens, viruses and spore forming organisms in disease outbreaks.
- ◆ Can be done any time of the year, even when the ground is frozen.
- ◆ Can be done with equipment available on most farms.
- ◆ Relatively odor-free.
- ◆ All sizes of animals can be composted.
- ◆ Egg waste and hatching waste can be composted.
- ◆ Relatively low requirements for labor and management.
- ◆ Economical.



With an Avian Influenza outbreak, the birds should be moved as little as possible to ensure disease containment; litter and other organic material should be composted with the birds for disinfection. Poultry houses will be out of production for at least 10 to 14 days so that the first active stage of composting can be completed. After the compost is removed from the building and placed in curing piles, the building can then be totally disinfected. If it is not feasible to compost in-house, composting should occur as close as possible to the site of operation.

For additional information see: *Natural Rendering: Composting Poultry Mortality* web site: <http://cwmi.css.cornell.edu/ai.htm>



Cornell Waste Management Institute • [cwmi.css.cornell.edu](http://cwmi.css.cornell.edu)  
Department of Crop & Soil Sciences

New York State Department of Environmental Conservation • [www.dec.ny.gov](http://www.dec.ny.gov)



## La Respuesta de Emergencia para el Control de Enfermedades



### Seleccione el Sitio

1. Seleccione un sitio que este bien drenado y no es predispuesto a inundaciones. Mantenga las pilas de aves muertas alejadas de viviendas, negocios, depósitos de agua, pozos, manantiales y áreas que por sus características indican que son hidrologicamente sensibles.
2. En la implementación de compostaje interno, la ventilación de la caseta debe ser natural y la ventilación mecánica debe estar apagada.

### Buena Limpieza

3. La limpieza del sitio es muy importante en compostaje; disuade a los animales carroñeros, ayuda al control del olor y mantiene buenas relaciones con sus vecinos.

### Preparar La Base

4. Remueva la basura y alimentos a un lado del granero. Coloque un lecho profundo de 18 pulgadas de viruta de madera gruesa; el lecho debe ser de 8 a 12 pies de ancho (dependiendo en la estructura y limitaciones de equipo), siempre y cuando el espacio lo permita.



### Armar La Pila

5. Añada una capa de 12-15 pulgadas de gallinaza y aves muertas, luego cubra con una capa 12-15 pulgadas de viruta de madera o de otras fuente de carbón (paja, aserrín);
6. Añada otra capa de gallinaza y aves muertas hasta que la hilera sea de dos o tres capas de alta y tan larga como sea necesaria.

7. Si sus aves y la gallinaza no están separadas, ponga un lecho de carbón (como en el paso 4), añada las aves muertas mezcladas con gallinaza de 4 a 5 pies de alto y continúe como se indica a continuación.

### Cubrir Muy Bien

8. Cubra con 2 pies de viruta de madera u otra fuente de carbón (paja, aserrín) para crear un relleno biológico. La pila, una vez terminada, debe ser de 5-7 pies de alto.

9. Asegúrese de que las aves muertas estén bien cubiertas para mantener los malos olores bajos, generar calor y mantener insectos o animales no deseados alejados de las hileras.

### Monitoreo de La Temperatura

10. Monitoreo será la única actividad que ocurrirá en esta etapa. Sondas de temperatura (termómetros) serán utilizadas para registrar la temperatura la cual debe estar entre 131° - 150° F o 55° - 65° C durante la mayor parte de tiempo en este período.

11. El primer proceso dentro de la caseta, donde se alcanzan temperaturas termófilas, será de 10 a 14 días. Durante este período, no habrá volteo, agitación u aireación de las aves muertas y residuos.



**NOTA DE HUMEDAD:** Si la gallinaza está muy seca, agregue humedad a las capas cuando se están armando. La materia prima de la composta debe estar a un 30-40% de humedad.



**NOTA:** Si hay un brote de alguna enfermedad, asegúrese que los trabajadores de adentro y afuera usen su equipo de protección personal, los cuales deben ser desinfectados apropiadamente cuando hayan terminado de usarlos. Los trabajadores deben ser vacunados si es necesario.



Las hileras se han movido al exterior para el proceso de curación.

12. Después del tiempo y temperatura requerida, las hileras pueden ser movidas fuera de las casetas para el proceso de curación. Si el compostaje es debido a un brote de enfermedad, entonces pruebas de laboratorio para la detección de la enfermedad son necesarias.

### Dejar Reposar de 4-6 Meses

13. Deje reposar 4-6 meses.

### Reutilizar El Material

14. Reutilice el material como un lecho para nuevas hileras de compostaje de aves muertas.

### Ventajas de Compostaje

- La destrucción de patógenos ocurre durante la etapa de termófila. El compost ayuda en el control de patógenos, virus y esporas de microorganismos en brotes de enfermedades.
- Se pueden realizar en cualquier momento del año, aún cuando el suelo está congelado.
- Puede hacerse con equipo que está disponible en la mayoría de las granjas.
- Relativamente libre de olores.
- Todo tamaño de animales pueden ser compostados.
- Los desechos de huevos y residuos de incubación pueden ser compostados.
- Los requisitos de mano de obra y manejo son mínimos.
- Económico.



En el caso de un brote de gripe aviar catastrófico, las aves deben moverse lo menos posible para detener la propagación de la enfermedad; la gallinaza y otros materiales orgánicos deben ser compostados con las aves muertas para ser desinfectados. Las casetas estarán fuera de producción por lo menos de 10 a 14 días, para dar lugar a que la primera etapa de compostaje sea completada. Después de que el compost es retirado de la caseta y se coloca en pilas de curación, la caseta puede ser totalmente desinfectada. Si no es posible hacer el compostaje internamente (dentro de la granja/caseta), el compostaje debe ocurrir en un lugar lo más cercano posible al sitio de operación.

Para obtener más información consulte el sitio de internet: <http://cwmi.css.cornell.edu/ai.htm>



Please note: These procedures may be revised as the situation develops.

#### EXECUTIVE SUMMARY OF THE METHOD

Composting is a biological heating process that results in the natural degradation of organic resources (such as poultry carcasses) by microorganisms. Composting has been successfully used throughout the United States for nearly two decades to control outbreaks of low pathogenicity avian influenza (LPAI) and highly pathogenic avian influenza (HPAI). Composting can be effective with most bird types and poultry house designs.

Microbial activity within a well-constructed compost pile can generate and maintain temperatures sufficient to inactivate the avian influenza virus. The effectiveness of this virus inactivation process can be assessed by evaluating compost temperatures and the shape of the time and temperature curve, visual observation of carcass decomposition, and the homogeneity of the compost mix.

**Successful mortality composting requires the following:**

1. **A qualified composting expert to guide windrow construction.**
2. **Trained equipment operators.**
3. **Sufficient carbon, water, and space.**

**If any of these components is lacking, composting is NOT recommended.**

*Prepared by members of the USDA Composting Technical Committee: Lori P. Miller, Gary A. Flory, Robert W. Peer, Eric S. Bendfeldt, Mark L. Hutchinson, Mark A. King, Bill Seekins, George W. Malone, Joshua B. Payne, Jerry Floren, Edward Malek, Mary Schwarz, and Jean Bonhotal*



Completed windrow (photo by Gary Flory)

# Help We Need From You

- ▶ **Questions to assist with determining whether burial, composting or incineration can be used.**



- ▶ **General Questions**

- ▶ Type(s) of bird(s) on site \_\_\_\_\_?

- ▶ Number and average weight (at their maximum weight) in each house:



\_\_\_\_\_

- ▶ Other materials that might need disposal and volume (litter, feed, etc.)?

\_\_\_\_\_

- ▶ Number of entrances and exits to location \_\_\_\_\_

- ▶ Proximity to neighbors:

- ▶ Residential \_\_\_\_\_

- ▶ Residential with backyard poultry \_\_\_\_\_

- ▶ Poultry operations \_\_\_\_\_

- ▶ Other livestock operations \_\_\_\_\_

- ▶ Proximity to waterfowl refuge(s)? \_\_\_\_\_

- ▶ Proximity to water bodies not on the premises \_\_\_\_\_

- ▶ Known scavengers that might affect disposal options (birds, coyotes, rodents, etc.)

\_\_\_\_\_



# Help We Need From You

▶ **Questions to assist with determining whether burial, composting or incineration can be used.**

▶ **Depopulation Questions**

▶ Number and dimensions of houses? \_\_\_\_\_

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ Style(s) of houses \_\_\_\_\_

▶ Species, number of birds and finished age/weight per house

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ \_\_\_\_\_

▶ Usual method used for removing birds from houses at marketable size or at end of production life.

▶ \_\_\_\_\_

▶ \_\_\_\_\_



# Help We Need From You

▶ **Questions to assist with determining whether burial, composting or incineration can be used.**

▶ **Composting**

▶ Is in-house composting feasible? Why, why not (type of production systems, obstacles in house, etc. ) \_\_\_\_\_

▶ Outside Composting: Is there a concrete pad or other hard surface that could be used as a pad and what is the size of this area? \_\_\_\_\_

▶ Estimate of space and “carbon” needed to compost (can use Appendix B below and/ or MSU Extension Calculator) \_\_\_\_\_

▶ Materials that could be used in composting process and volume (feed, litter, etc.)? \_\_\_\_\_

▶ Issues that might affect composting include (relation of wells and water bodies to compost site, prone to flooding, etc. )? \_\_\_\_\_

▶



# Timelines

- ▶
- ▶ SOPS
  - ▶ Composting –Written/ Now being edited
  - ▶ Landfill- Written/ Now being edited
  - ▶ Burial- Written/ Now being edited
- ▶ Spanish Version of Composting Guide- Done
  - ▶ How do we want to distribute them?
- ▶ Questionnaire written- needs to be edited/ distributed (End of December?)
  - ▶ How would Industry like to proceed on this?
    - ▶ Any volunteers to look at the Questionnaire, to distribute it?
    - ▶ How are you most comfortable in handling the questionnaire information?
      - ▶ Fill out ahead of time but make it available at time of need?



# Other Things That Might Help?

- ▶ List of compostable materials (bulking materials/ carbon sources) that could be used with carcasses?
  - ▶ Contacts for such material?
- ▶ List of composting experts in the State that might be contracted?

